

Innovative method for producing analytical suspension cell lines

Field of application

Analytical cell-based assays, used in diverse applications such as the risk assessment of chemicals as well as pharmaceuticals or the investigation of stem cell propagation stages, currently employ adherent cell lines.

State of the art

Adherent cell lines come with serious drawbacks. Most importantly, extensive measures are needed for the propagation of said cells. Each transfer between culture dishes requires a cumbersome procedure, which is time-consuming and cost intensive. In addition, fetal calf serum (FCS) is needed as a supplement, potentially contaminating the cell culture and biological products obtained thereof. Furthermore, FCS is inconsistent in quality, which leads to massive problems in cell-based processes.

Innovation

Scientists at the RWTH Aachen University invented a method of adaptation and stably growing any analytical (reporter) cell line to/in suspension and an optimized serum-free, chemically defined medium (CDM).

Briefly, the technique enables the versatile transition of an adherent cell line into a suspension cell line. On top of that, the latter can also be generated from stem cells or primary cells by maintaining the cell type- as well as organ-specific metabolic capacity. Thus, analytical cells can be stably cultured in a suspended state and optionally be converted to the desired 3D- or 2D-culture systems by adding tailor-made supplements. This enables high cell density growth and bulk applications towards tissue engineering as well as toxicity testing. Furthermore, high-throughput screening efficiency and cost effectiveness is profoundly enhanced.

Moreover, in contrast to adherent cell lines, the technique no longer requires fetal calf serum (FCS), which increasingly constitutes a cost driver and quality problem for analytical cell-based assays.

Your benefits at a glance

- ✓ Significant increase of high throughput screening efficiency
- ✓ Fetal calf serum no longer required
- ✓ Custom-made suspension cell line is stable in growth, morphology and response
- ✓ Diverse field of application:
 - Risk assessment of industrial chemicals and pharmaceuticals (eco-/toxicity testing)
 - Investigation of tumor progression as well as metastasis (personalized medicine)
 - Tissue engineering

Technology transfer

Technologie-Lizenz-Büro GmbH is charged with the commercialization of this technology. The inventors currently set up the RWTH Aachen spin-off company EWOMIS.

Patent portfolio

A European Patent (EP) application was filed on 31 August 2016.

Contact

For further information please contact:

Sebastian Schilling, M.Sc.

schilling@tlb.de

Technologie-Lizenz-Büro (TLB)
der Baden-Württembergischen Hochschulen GmbH
Ettlinger Straße 25, D-76137 Karlsruhe
Tel. 0721 79004-0, Fax 0721 79004-79

www.tlb.de

Reference number: 16/030 TLB