Disturbance-free, Smart Monitoring of Cell Culture Growth
Using CITSens Bio

In-situ Glucose Measurement During Fibroblast Growth in T-Flasks: Realtime, Unattended, Wireless

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CITSens Bio consists of a sensor built into the flask cap, the data logging device acting as a data beamer, the receiver and PC containing the software and standalone server capacity. Direct measurement of current (nA) data is transferred wireless to the server and can be viewed using C-CIT Sensors® PC or any PC using a web browser. The company’s software acts as the interface displaying the evolution of the glucose concentration.

Discussion and Outlook

The results obtained demonstrate the feasibility of using CITSens Bio as an online cell culture monitoring tool, applicable over a period of at least 6 d and sensitive enough to detect minor changes between 0 and 1 g/l glucose. The use of CITSens Bio allowed to leave the cell cultures undisturbed within a closed incubator under stable carbon dioxide and temperature conditions. No need for visual checks or sample taking. CITSens Bio not only zooms in on a random spot of your growing tissue surface but it delivers precise data allowing you to determine the right time for intervening with your culture, be it for harvest, split, media change, induction of differentiation and more.

Future work will focus on CITSens Bio’s further development into a toxicity assay system (multwell plates with integrated sensors) in order to monitor changes in glucose oxidation based on compounds added to given growing cell cultures.

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