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## **Monitoring pH and dissolved oxygen in mammalian cell culture using optical sensors**

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### **Abstract:**

Here, we have studied two parameters critical to process control in mammalian cell culture; dissolved oxygen ( $dO_2$ ) and pH, measured with fluorescent sensors thus allowing the study of the metabolic state of cells in culture without removing or damaging cells during cultivation. Two cell lines, namely, NS0 and CHO were batch-grown in 24-well plates at different serum concentrations with the sensors implemented in the bottom of each well. The data showed a good relationship between the  $dO_2$  and pH data obtained from fluorescent probes and the growth and death characteristics of cells. The method has provided a high throughput on-line multi-parametric analysis of mammalian cell cellular activity.

Key-words: Fluorescent sensor, pH, Dissolved Oxygen, Cell culture, High throughput system