

Lab-on-a-Chip Technology for Continuous Glucose Monitoring

Peter Gravesen, Ph.D. Kristian Raaby Poulsen, Ph.D., and Holger Dirac, Ph.D.

Abstract

The demand for continuous glucose monitoring systems is greater than ever. The microelectromechanical systems (MEMS) approach has the advantage of being relatively easy to upscale to a commercial level; the preferred MEMS technique would be to run several detectors at once and, through the improved statistics, get a both more accurate and more reliable device than is currently available. Lab-on-a-chip technology may be seen as a further development of MEMS technology for analytical sensors. Lab-on-a-chip systems may be used to obtain improvements on several important characteristics of a sensor system: remove or decrease cross-sensitivity, improve sensor stability, improve accuracy, and/or improve response time compared to similar laboratory-equipment methods.

J Diabetes Sci Technol 2007;1(3):372-374

Author Affiliation: Danfoss-Bionics A/S, DK-6430 Nordborg, Denmark

Abbreviations: (CGMS) continuous glucose monitoring systems, (ICU) intensive care unit, (MEMS) microelectromechanical systems, (TGC) tight glycemic control

Keywords: continuous, glucose, lab-on-a-chip, microelectromechanical, sensor

Corresponding Author: Peter Gravesen, Ph.D., Danfoss-Bionics A/S, Nordborgvej 81, E1-V28, DK 6430 Nordborg, Denmark; email address Peter.gravesen@danfoss-bionics.com