

6th International Conference and Exhibition on **Analytical & Bioanalytical Techniques**

September 01-03, 2015 Valencia, Spain

Labs, cells and organs on a chip

Albert Van Den Berg

BIOS/Lab on a Chip group, The Netherlands

The recent rapid developments in microfluidic technologies have enabled the realization of miniaturized laboratories. This lab-on-a-chip will play an important role in future medicine, both in point-of-care devices for drug or biomarker monitoring, as well as in early diagnostic devices. We developed a pre-filled ready-to-use capillary electrophoresis platform for measuring ions in blood. It is used to monitor lithium in finger-prick blood of manic-depressive patients, but can also be used for measuring calcium in blood for prevention of milk fever, or for measuring creatinine in blood or sodium in urine for early detection of ESRD. Apart from diagnostic devices, microfluidic devices are increasingly used to realise advance disease and organ-models, as illustrated by the blood-brain barrier chip and a blood vessel on a chip. Finally, a microdroplet platform for encapsulation of single cells in microdroplets, ordering of these microdroplets and 1:1 fusion of these droplets is demonstrated. We believe this is a very powerful new tool that can be used for high-throughput single cell experimentation.

Biography

Albert Van Den Berg received his MSc in applied physics in 1983, and his PhD in 1988 both at the University of Twente, the Netherlands. From 1988-1993, he worked in Neuchatel, Switzerland, at the CSEM and the University (IMT) on miniaturized chemical sensors. In 2000 he was appointed as full Professor on Miniaturized Systems for (Bio) Chemical Analysis in the faculty of Electrical Engineering. He received several honors and awards such as Simon Stevin (2002), ERC Advanced (2008) and ERC Proof of Concept (2011, 2013) grants, Spinoza prize (2009), Honorary University Professorship (Twente, 2010), and board member of the Royal Dutch Academy of Sciences (KNAW) in 2011.

a.vandenberg@utwente.nl

Notes: