

The Speakers

Claudia Gärtner

Claudia Gärtner, PhD, studied chemistry and biology at the university of Duesseldorf, Germany. She became involved with microtechnologies at the Institute of Microtechnology Mainz (IMM). In 1999 she took over the position of the director of the newly founded Application Center for Microtechnology Jena, Germany (amt). She was involved in the founding of the biotechnology start-up "x-zyme" (2001) and the microfluidic company "microfluidic ChipShop" (2002). In 2002 she was nominated for the German Founders Prize. Since 2006 she is CEO of microfluidic ChipShop.

Ciara K. O' Sullivan

Ciara O' Sullivan, is an ICREA research professor. She received a BSc in Analytical Chemistry from Dublin City University in 1992, a PhD in Biotechnology from Cranfield University in 1996 and then went on to lead the sensors group at University College Cork from 1996-99. She then took up a Marie Curie Fellowship at the Universitat Rovira i Virgili (1999-2001) and was then awarded a Ramon y Cajal Fellowship which she pursued for 1 year prior to taking up her current position as ICREA research professor and establishing the Nanobiotechnology and Bioanalysis Group at the Universitat Rovira i Virgili.

Linda Strömbom

Linda Strömbom is a project manager and research scientist at the TATAA Biocenter headquarters in Gothenburg, Sweden. She is a skilled researcher in qPCR, and has held numerous practically oriented courses in qPCR in Europe and throughout the world. Strömbom has a M.Sc. degree in Biotechnology engineering from Chalmers University of Technology in Sweden, and has since then been working with gene expression analysis using qPCR. She has extensive experience in assisting researchers implement the qPCR technique for a variety of application.

Venue, Registration & Contact

Venue:

Date: Monday, 5th of October 2009
Time: 09.30 - 18.00
Venue: Hanover Fair
Fair Ground
30521 Hanover, Germany
Convention Center (CC), Room 107

Accommodation:

For accommodation please refer to:
www.travel2fairs.com

Registration:

Please send the registration via Email or fax to:

Training@microfluidic-ChipShop.com
Fax: +49 3641 3470590

Surname: _____
First name: _____
Company: _____
Street: _____
Town: _____
Country: _____
Phone: _____
Email: _____

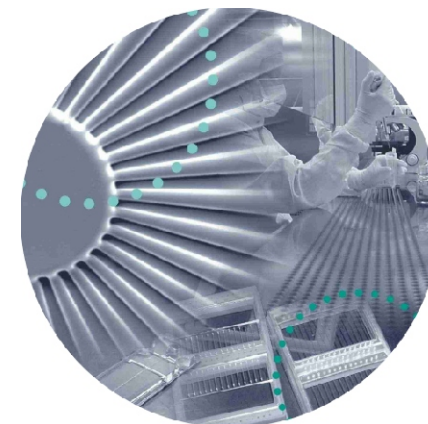
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Hands-on-training in Lab-on-a-Chip Technology

The merger of miniaturization,
advanced sensor technology
and assay development



5th of October 2009
Hanover ... Germany

Start the Biotechnica week
with Lab-on-a-Chip
Technology!

Motivation

Miniaturization

Lab-on-a-chip technology will be the focus of this tutorial, due to take place one day before the Biotechnica 2009 opens its doors, with an objective of running analytical, bioanalytical or diagnostic assays in a miniaturized format, facilitating cost-effective, with minimal reagent use, finally achieving the vision of future analytics with "sample in result out".

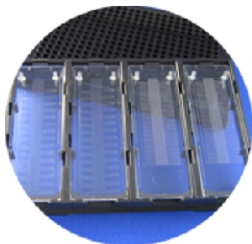
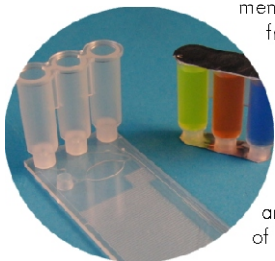


More than Miniaturization

However, a Lab-on-a-Chip is more than a miniaturized device. The miniaturized format is essential but to carry out an analysis on a chip requires, for example sensor technology for the read-out and the individual assay steps as well as the detection reaction itself.

Standardization

The present situation for lab-on-a-chip devices is that just a few systems are on the market and for development purposes platforms both from the chip and instrument perspective are rare. With the help of standardization and a platform concept the true commercialisation of microsystem devices integrating sample treatment and detection for a wide range of applications gets possible.



The 4 Topics

Agenda:

- 09.30 - 11.30 Microfluidics Technology & Application
- 11.30 - 11.45 Coffee Break
- 11.45 - 13.45 PCR & qPCR
- 13.45 - 14.15 Lunch Break
- 14.15 - 16.15 Sensor Technology
- 16.15 - 16.30 Coffee Break
- 16:30 - 18.00 Lab-on-a-Chip Technology Hands-on-Training & Discussion

Microfluidics Technology & Application

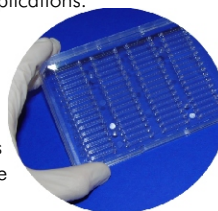
Dr. Claudia Gärtner, microfluidic ChipShop GmbH, Germany

This part will provide a broad overview on all aspects of micro- and nanofluidic technology starting with the history over one decade of microfluidics and describing the various fabrication technologies for miniaturized devices in polymers, glass, silicon and metals. A main focus is the application of microfluidic components in biotechnology (e.g. separation techniques, PCR, Lab-on-a-Chip etc.) and chemistry (e.g. micro reactors, micro mixers etc.) and a special microfluidic tool box suited for these applications.

PCR Molecular Assay Technology

Linda Strömbom, TATAA Biocenter, Sweden

Due to extraordinary sensitivity and low sample requirements, PCR and quantitative PCR (qPCR) are typical examples of molecular assay technologies that are frequently converted into a miniaturized format. However, miniaturizing molecular biology assays are not necessarily trivial, and it is critical to have thorough knowledge about the characteristics and requirements of the assay technology used. This seminar will give a general introduction to the PCR and qPCR assay technologies, with a focus on what is required to achieve optimal assay sensitivity. Special attention will be given to the pitfalls of multiplex PCR, where multiple DNA sequences are amplified from the same starting material.

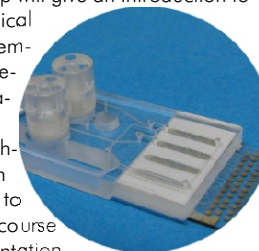


The 4 Topics

Novel sensor technologies & their use in miniaturized assays

Prof. Dr. Ciara O'Sullivan, University of Rovira i Virgili, Spain

This part of the workshop will give an introduction to biosensors, electrochemical transduction, surface chemistry for construction of genosensors, detection strategies and multiplexing as well as addressing technical issues confronted in scale-up of genosensors to an industrial scale. The course will also look at instrumentation, electrode array design and miniaturisation, with a video to look at an electrochemical microsystem in action.



Finally specific case studies of qualitative detection of DNA markers associated with a pre-disposition to coeliac disease, and quantitative detection of RNA expression of HPV markers related to cervical cancer, both used as screening tools. Furthermore the use of electrochemical genosensor arrays for the post-surgery/therapy monitoring of breast cancer evolution in the rapid and early detection of disease recurrence/metastasis, will be discussed.

Lab-on-a-Chip Technology

Hands-on-Training

Entering the real world: The final part will give the opportunity to run experiment with lab-on-a-chip devices. Simple chips to be used without any instruments, chip electrophoresis, PCR, pumping set-ups etc. will be available for hands-on-tests.

