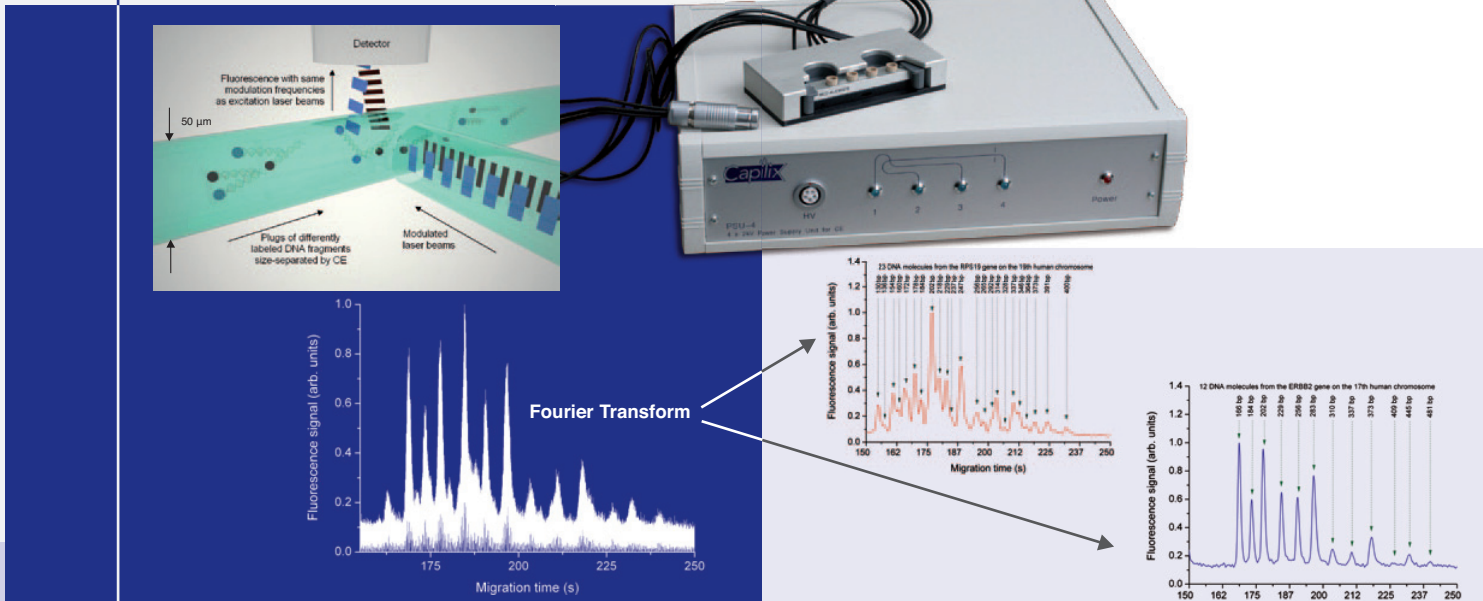


A cooperation with:



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B I O S C I E N C E

Ultrasensitive optofluidic DNA analysis



Application

This is a novel CE application for ultrasensitive Microfluidic Capillary Electrophoresis analysis of multiple DNA fragments using integrated optics and modulated laser beams in combination with Fourier Transform analysis.

An innovative microfluidic chip with monolithically integrated waveguides for controlled excitation and off-chip fluorescence detection was applied on the commercially available Capella MCE platform of Capilix BV.

The laser induced fluorescence (LIF) detection is combined with a unique single-point, multiwavelength modulated frequency encoding detection technique, enhanced by Fourier Transform analysis.

Multiple fluorescently end labeled DNA fragments of different lengths were obtained by selective PCR amplification of specific regions of genes using Multiplex Ligation-dependent Probe Amplification (MLPA). Diagnostically relevant genes related to breast cancer and other important diseases have been investigated.

Features

Fast separation of multiple fluorescent DNA fragments in the range of 50 up to 500 base pairs:

- Multicolor DNA detection in a single run
- More DNA data from a single CE run
- Ultrasensitive LIF detection
- New stacked injection of DNA sample
- LOD in the range of 100 femtomolar; 5 – 10 molecules in the excitation volume
- Frequency encoding by intensity modulation
- Fourier Transform data generation
- Less than 5 minutes analysis time
- DNA sizing accuracy > 99%

Sponsored by:



Developed by:



LioniX BV

LioniX BV is a global leading provider in the development and production of innovative and leveraging products based on micro/nano technology. LioniX also provides MEMS foundry services.

Our customers operate in the Data/Telecom, Industrial Process Control, Life Sciences and Space markets, among others. They include innovative OEM's, VC-funded start-up companies, multi-national corporations, and research institutions located around the world.

The core competencies of LioniX include integrated optics, micro/nanofluidics and related surface functionalization. Additionally, LioniX has been successful in combining these core competences in one technology platform, enabling unparalleled innovative product concepts for their customers.

LioniX offers design-for-manufacturing and horizontal integration through partnerships with other micro/nanotechnology foundries and suppliers of complementary technologies such as micro electronics, biotech, chemistry/pharma, medical, food, water and space. These relationships are based on subcontracting agreements, licensing of IP and/or joint ventures.



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Zebra Bioscience BV

Zebra Bioscience is a product-based company that develops and distributes products for studying genes, proteins and cells – from normal processes to disease states.

The high quality reagents of Zebra Bioscience and Dako Denmark are sold in Europe, and offer unique solutions to customers for the analysis important diseases and to improve diagnosis and disease management.

Zebra Bioscience is an ISO accredited company (ISO1705 and ISO13485:2003).

Zebra Bioscience is dedicated to provide customers with an expanding product line for Clinical Chemistry, Flow Cytometry, Tumor Diagnosis and Magnetic Nanoparticle applications.



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