General Information

Date: 24th October 2007

Place: IKERLAN – Arrasate-Mondragón. Gipuzkoa. Spain

Inscription free.

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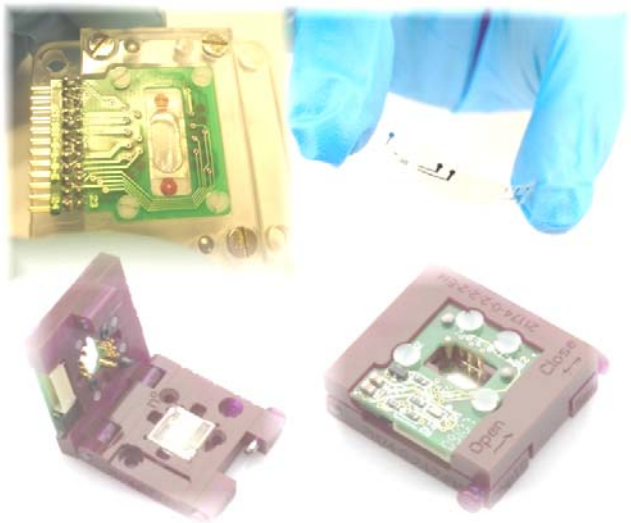

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WORKSHOP

Lab on a Chip:

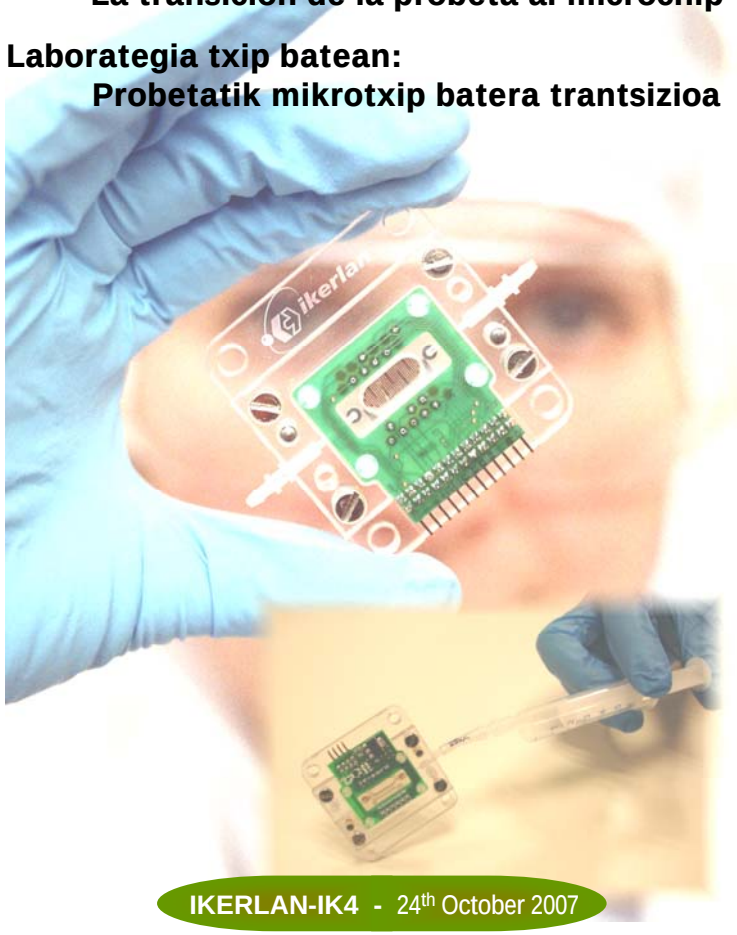
A trip from the tube to the microchip

Laboratorio en un chip:

La transición de la probeta al microchip

Laborategia txip batean:

Probetatik mikrotxip batera trantsizioa



IKERLAN-IK4 - 24th October 2007

Organized by: ikerlan ik4 research alliance

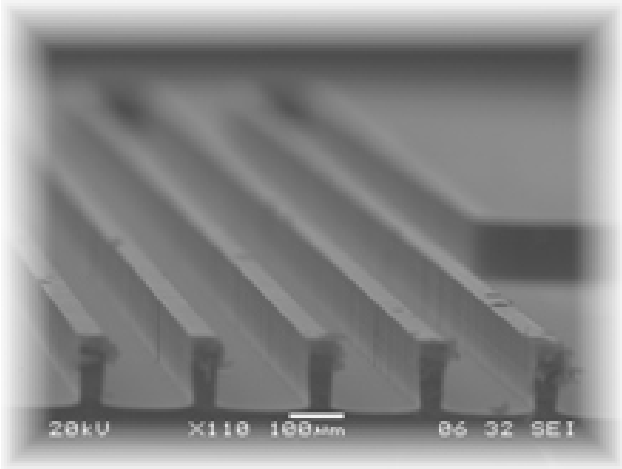
Collaborators: CIC microGUNE Microtechnologies Cooperative Research Center; GAIKER ik4 research alliance; ik4 research alliance; OPTOLABCARD

Introduction

Portable and quick clinical, food and environmental laboratories are needed to avoid the spread of infectious diseases or sources of contamination. The aimed devices (usually called Point of Care) consist of a hand held base unit and a disposable Lab on a Chip (LOC). The LOC, made at a wafer level, contains all the disposable components, whereas the base unit has all the standard electronics and optics. This approach will avoid any cross contamination between measurements and it obliges us to drastically simplify the LOC components (valves, pumps, reservoirs, sensors, heaters, etc.) since they will be disposed of after use along with the LOC.

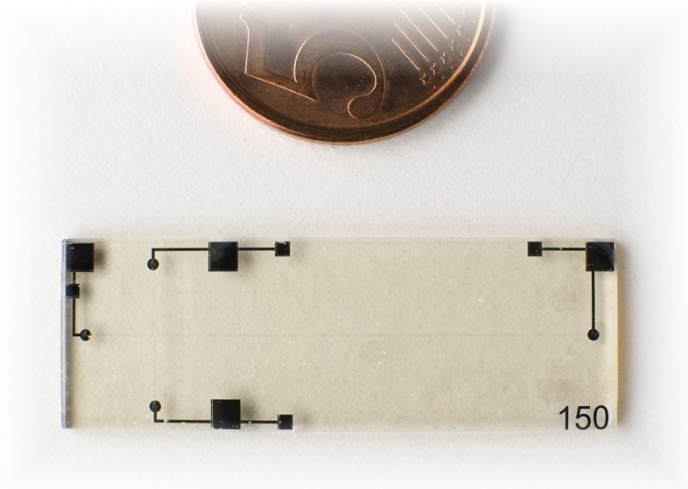
The advance of the Micro Electronic Mechanical System (MEMS) delivered some progress in this field. The 90´s was a decade of incredible microfabrication process developments and transducing mechanism characterisation. However, few of these processes have been transferred successfully into portable biological applications because of the lack of sample preparation integration and the difficulty of fabricating the devices reliably in mass-production. Consequently, the usefulness and availability of rapid and compact diagnostic devices remains very limited. Currently, portable devices are based on slow immunochromatographic strips or low sensitive electrochemical detection systems, whereas desktop systems are sensitive and automatic but bulky and heavy.

Currently, extensive research is being done to integrate sample preparation steps and specific analytical detection within portable devices. Some miniaturisation of these operations has been achieved: PCR thermocycling, cell separation, denaturation of DNA, PCR optical detection, and cell lysis. This workshop will show the latest results and discuss the strategy to combine life sciences and MicroNano Systems in order to circumvent the existing challenges and launch a competitive LOC.



Programme

08:45	Reception
09:00	Introduction Dr. María Aguirre, BioBask, Spain
09:15	Cell handling& characterisation using BIOMEMS Prof. Jon Cooper, Glasgow University, UK
09:45	Biosensing using microtechnologies Dr. Francisco Javier Muñoz, CNM, Spain
10:15	Lab on a chip in veterinary applications Dr. Dang Duong Bang, VET, Denmark
10:45	Coffee
11:15	Genomics and proteomics in LOCS Prof. Anders Wolff, MIC, Denmark
11:45	Biomolecular reactions on a chip Dr. Garbiñe Olabarria, Gaiker-IK4, Spain
12:15	Lab on a chip integration Dr. Jesús M. Ruano-López, Ikerlan-IK4 (CIC microGUNE), Spain
12:45	Discussion



NOTE: The lectures at the workshop will be in English