DIAGNOSTICS

Nanofluidic platform for on-chip real-time binding kinetic assays

Dynamics of protein-protein interactions is central to understand the cell machinery and to develop new drugs. While SPR affinity-based sensors are now routinely used, they suffer from a lack of sensitivity when analyzing small molecules interactions or high kinetic rate reactions. Furthermore, the requirement of highly skilled personal and expensive equipment, hampers their wide diffusion.

DESCRIPTION*

- Nanofluidic platform for kinetic assays:
  - Interaction of injected fluorescent analytes with probe molecules grafted in nanoslit with high capture efficiency
  - Real-time molecular kinetics studied by fluorescence imaging
  - Fluorescent detection compatible with standard wide field microscope
  - Multi-concentration screening possibility in a single experiment with access to on/off kinetic data
  - Fluid actuation by simple pressure source, chip regeneration and multi-usage possible

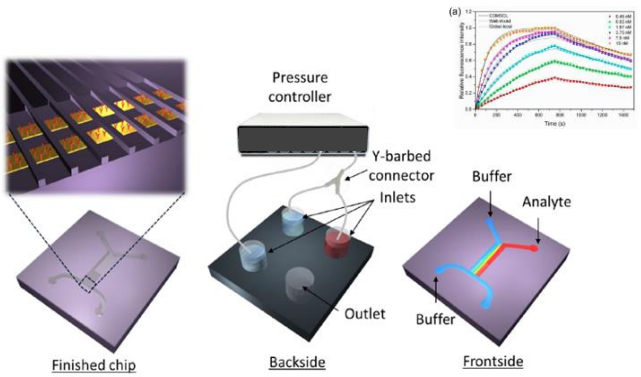

Photo: LAAS-CNRS.

TECHNICAL SPECIFICATIONS

Detection limit	10 pM / 10 zeptomole
Analyte concentration range/ K_D range	pM - 100 nM
Sample volume	< 10 µl
Chip size	1.5 x 1.5 cm²
Time of analysis	Only limited by reaction rate

* Technology requiring license rights.

COMPETITIVE ADVANTAGES

- Ease of use
- Cost effective
- Fast analysis
- Low sample volume
- Access to large range of molecular binding strengths
- Multiplexed concentration screening

APPLICATIONS

- Characterization of biomolecular interaction in:
  - Fundamental life-science studies
  - Drug screening
  - Immunogenicity test
  - Companion test

INTELLECTUAL PROPERTY

- Patent pending

DEVELOPMENT STAGE

- Technology validated at lab level

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LABORATORY

- Nanobiosytems group

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