SILICON KINETICS

APPLICATION and PRODUCT BACKGROUNDER

BIOMOLECULAR INTERACTION ANALYSIS FOR THE INDIVIDUAL RESEARCHER

SILICON KINETICS

APPLICATIONS	: Research into disease pathways, biomarker discovery, drug discovery, drug and vaccine development, quality control in drug manufacturing
USES	: Label-free determination and quantitation of binding and dissociation of biomolecules, including protein-protein, protein-DNA, protein-drug, or peptide-drug interactions. Determination of label-free binding events (yes/no), real-time measurement of binding and dissociation rates, and ranking of biomolecular affinities.
PRODUCT FAMILY	: SKi Pro™ label-free biomolecular interaction instrument platform SKi Sensor™ family of nano-porous silicon biochips SKi Report™ software for input of experimental protocol and output and analysis of results
CORE TECHNOLOGY	: 3D nano-Pore Optical Interferometry (3D nPOI™)
TECHNIQUE	: Target molecules are immobilized on three-dimensional nano-pore wall surfaces coated with a hydrophilic linker. As an analyte of interest binds to the immobilized target, water or buffer in the nano-porous region is replaced with analyte, which has a different index of refraction than the water or buffer replaced. Optical interferometry precisely measures these index of refraction changes in real time. Thus, analyte bound can be quantified as a function of time, yielding kinetic association rates. Dissociation rates are measured in a similar manner.

Silicon Kinetics, Inc.
10455 Pacific Center Court
San Diego, CA 92121-4339

+1 (858) 646-5300 tel.
+1 (858) 646-5401 fax
www.siliconkinetics.com

SKi SENSOR™ BIOCHIPS	: Silicon chips with nano-porous region etched partly into the chip. The chips are embedded either in a flow cell, or at the bottom of a strip of 8 wells, which can be fitted in a standard 96-well plate.
SKi SENSOR™ FLOW CELLS	: Microfluidics and biochips are integrated into a complete flow cell. Each flow cell has two regions of interrogation: one region for the experiment, and another adjacent region for referencing. During Q4 2008, Silicon Kinetics will also introduce strips of 6 flow cells, each self-referenced, for automated multiple experiments. Strips of 6 flow cells, up to a total of 24, fit on a standard 24-well cell plate. Flow cells are ideal for quantitation of association and dissociation kinetics (k on and k off), as the concentration of analyte is kept constant by replenishment through flow, so that analyte concentration does not affect binding or dissociation rates.
SKi SENSOR™ WELLSTRIPS	: SKi Sensor wellstrips are ideal for determining the presence or absence of binding, or for ranking of relative biomolecular affinities. Wellstrips are not designed for for optimum quantitation of kinetics.
SKi REPORT™ SOFTWARE	: Intuitive visual interface for input of experimental setup and analysis of data. Curve fitting functions, including global fitting. Reports may be automatically generated as either .pdf or .doc files.
MODULAR AUTOMATION	: SKi Pro platform allows users to choose the level of automation required, with the upgrade path customizable when required. The modular product range covers many possibilities, from manual pipetting to full high-throughput automation, which allows unattended sampling and sample delivery to SKi Sensors.

More information can be found at www.siliconkinetics.com

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