

**Real time, multiplex and label-free Bio-interaction analysis
(by Surface Plasmon Resonance imaging)**

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For the last two decades, the Surface Plasmon Resonance (SPR) technology is demonstrated as a powerful tool for the bio-molecular interactions investigations and analysis.

The SPR imaging technology is a ideal solution for rapid, label-free and multiplexed bio-assays and investigations. It's a high sensitive detection method for bio-molecular interactions, using a micro-array biochip format to rapidly monitor multiplex kinetic interactions in real time. This technology allows direct visualization of biomolecular interactions and is suitable for determination of real time physico-chemical interactions and kinetics. Thanks to SPRi, analytes can be detected in the range of the femto-mol.

Surface Plasmon Resonance (SPR) is an optical detection process that can occur when a polarized light hits a prism covered by a thin metal layer. Briefly, a broad monochromatic polarized light (at a specific wavelength) illuminates the whole functionalized area of the SPRi-Biochip™, which is combined with a detection chamber. A CCD video camera gives access to array format by image capture of all local changes at the surface of the SPRi-Biochip™.

SPR imaging has the capacity to record simultaneously the interaction of any ligand to every single spot on the golden surface of the reaction chamber without any label addition. The signals obtained are able to identify, by the spot position in the chip, which probes are recognized by the ligand but also, by analysing the on and off rates of ligand binding, the mean affinity (or avidity) of these ligand to probes can be calculated.

Main applications involve interactions between DNA-DNA, protein-DNA, protein-ligand, peptide-ligand, antibody-cell in the fields of health (aid to diagnosis and treatment), environmental control, new drug discovery and development in pharmaceutical and cosmetic research, quality-control in agro-food etc...