TIRF Technologies

Sensing Biomolecular Interactions

TIRF Biosensor Instrument *FluoroGazer*

- *Turn-key TIRF biosensor instrument*
- *Limit of detection - single molecules*
- *Parallel detection of up to 1000 bioanalytes*
- *PC-controlled LED and laser illuminators*
- *Photon counting EM-CCD photodetectors*
- *PC-controlled fluidics and filter-wheels*
- *Optional electrochemical control*
- *Optional temperature control*
- *Optional dielectrophoretic control*
- *Chemically modified TIRF sensor chips*
- *User friendly software*

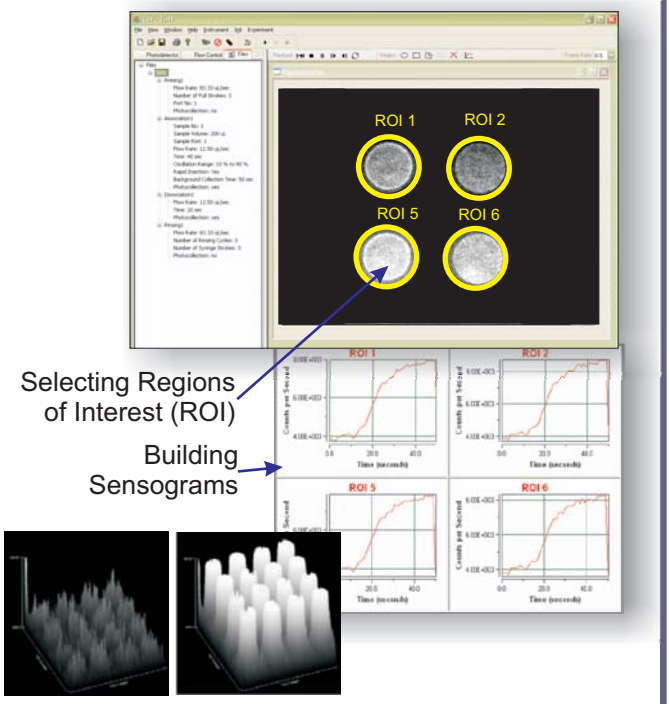
TIRF Biosensor *FluoroGazer*

FluoroGazer is a total internal reflection fluorescence (TIRF) fluorometer equipped with photon counting electron-multiplying EM CCD camera, computer-controlled multicolor illuminator, automated filter wheels, and precision fluidics. TIRF Fluorogazer provides the limit of detection at the level of single molecules and is capable of parallel detecting of up to thousand of bioanalytes simultaneously. Precision fluidics provides automated delivery of bioanalyte solutions and buffers into TIRF flow chamber. In contrast to traditional microarray- and plate-readers that measure only end-point results, FluoroGazer monitors the entire course of the kinetics of biomolecular interactions. Data analysis software derives kinetic rate constants of association and dissociation. The kinetics and its dependence on electric field and temperature allow for discriminating single nucleotide mismatches in DNA and RNA sequences and distinguishing between close homologs of protein targets. User-friendly software contains templates for typical TIRF sensogram measurements, wizard for designing custom-defined fluorescence polarization, Forster resonance energy transfer (FRET), and fluorescence recovery after photobleaching (FRAP) experiments. Optional ElectroChemical and Electric field Control (TIRF-EC) can be used for manipulating with biomolecules and living cells directly in the TIRF flow chamber. EC polarization programs facilitate regeneration of bioassays at TIRF-EC surface, accelerate mass transfer, stimulate association and dissociation, and perform lysis or electroporation of living cells.

TIRF Technologies offers chemically modified TIRF and TIRF-EC sensor chips and reagent kits for immobilization of biomolecules and assays. The immobilization chemistry (based on avidin-biotin bond) is fine-tuned to provide biologically friendly environment to immobilized molecules. We also offer microarray-printing and assay-development services.

Data Acquisition and Processing

Building of sensograms and calculating kinetic rate constants for up to thousand regions of interest (ROI)



Analysis of Biomolecular Interactions

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