

## Binding Kinetics by FCCS

Apart from being your premium partner for protein X-ray structures, CRELUX offers a large number of hit finding, hit validation and biophysical screening technologies. We now have added easy access to binding kinetics of your compounds determined by fluorescence cross correlation spectroscopy (FCCS). The service is available directly from CRELUX - with the lab work being performed by our new partner and FCCS expert **Intana Bioscience GmbH**. Determination of  $K_D$  values of your compound or **kinetic analysis** on a **kinase panel** for instance, can accompany any of our products or can be amended to any of our service agreements.

### SPOTLIGHT TECHNOLOGY: Fluorescence Cross-Correlation Spectroscopy

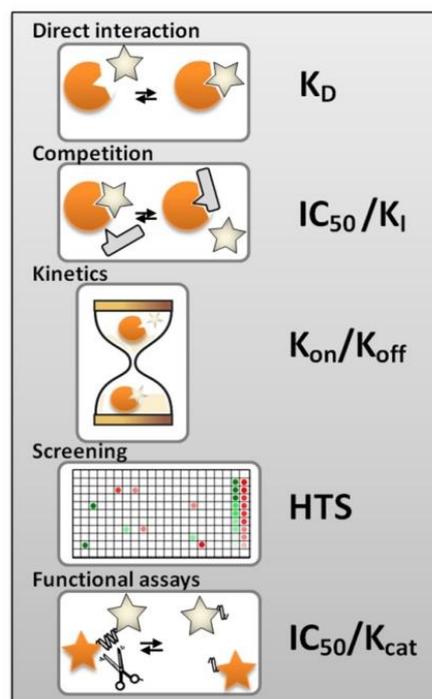
FCCS is used to analyze affinities and binding kinetics of **molecular interactions** in aqueous buffers, cellular lysates, serum and **even living cells**. It is an ultra-sensitive technique that extracts comprehensive information on concentration, diffusion coefficient, size and brightness of fluorescently labelled molecules from the sample. FCCS can be applied with **high throughput** to proteins, small molecules, DNA/RNA, and many more.

To obtain the binding curve, the concentration of a labeled compound is titrated in multiple steps over a concentration range from 500nM to 1nM against a constant concentration of target. Auto- and cross-correlation analysis yields concentrations of free and bound interactors as well as the concentration of the dually labeled complexes, from which the dissociation constant can easily be calculated.

The binding kinetics (on and off rates) of non-labeled ligands is determined by mixtures with target and labeled ligand and is analyzed with proprietary software.

**Determination of binding kinetics of ligands with over 10 hrs of residence time or in cellular lysates is easily possible with FCCS.**

Figure: FCCS Application Examples



## **Kinases**

A kinase profiling platform is established with 520 human kinase domains to be used with labeled compounds or 288 human kinases to be used with non-labelled ligands in competitions assays. This platform allows examining inhibitor potency and specificity in cellular lysates, providing an advantage over readily-available biochemical solutions. In addition to  $K_i$  determination, analyzing binding kinetics ( $k_{on}/k_{off}$ ) is also feasible.

## **Membrane Proteins**

FCCS is particularly an asset when studying membrane proteins, especially given their difficult purification. Ligand-binding assays are established for several GPCRs and we are working on expanding the membrane protein characterization service.

## **Cellular Lysates and Tissues**

FCCS overcomes the need to purify protein targets, leading to more physiological conditions. This leads to the avoidance of experimental artifacts and data is obtained faster. It allows us to examine target occupancy in cellular lysates and the technique is now being extended to analysis of tissue samples. In short, FCCS provides fast and cost-efficient analysis of molecular interactions, especially for difficult target proteins and directly out of lysates.

## **XPRESS PORTFOLIO**

Our XPRESS portfolio is constantly growing. It is your solution of choice if you are looking for quick and cost-efficient access to co-crystal structures. It grants turn-around times of just a few weeks. The complete XPRESS portfolio can be found here. <http://www.crelux.com/our-solutions/#xpress>

Most of our XPRESS targets are also available ready to use as assay grade or crystal grade proteins and come with reagents, QC data sheet and complete crystallization conditions.

## **BUSINESS NEWS**

Beyond Research Initiative of CRELUX and 4SC Discovery has reached a first milestone.

For more details read our press release. <http://www.crelux.com/news-1/#beyond-research-1>

## **MEET US AT**

We are **traveling to the US east coast**. Contact us if you would like to arrange an appointment with us in the Boston and New York area from February 23 – March 3!

**Bio Europe Spring, March 9-11, 2015, Paris, France** [www.ebdgroup.com/bes/index.php](http://www.ebdgroup.com/bes/index.php)

**RICT, July 1-3, Avignon France** <http://www.rict2015.org/>

## **CONTACT**

CRELUX GmbH, Am Klopferspitz 19a, D-82152 Martinsried, Germany

Dr. Michael Schaeffer, [schaeffer@crelux.com](mailto:schaeffer@crelux.com), +49 (0) 89 700760170, [www.crelux.com](http://www.crelux.com)