

Robotein[®] A robotic platform dedicated to high-throughput protein production and analysis

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www.robotein.ulg.ac.be

What is Robotein[®]?

A technological platform that allows automated screening for cloning, expression, purification and biophysical characterization of proteins, on either a collaborative or service basis.

It is built on competences and infrastructures available in the academic setting of two labs that offer a complete structural biology portfolio: the Centre for Protein Engineering (CIP, Université de Liège, Belgium) and the Structural Biology and Bioinformatics Centre (SBBC, Université Libre de Bruxelles, Belgium).

Which equipments, for which applications?

High-throughput sample generation

EasyPick Microlab STARlet workstation (Hamilton)

- ✓ HT cloning in *E. coli* and *P. pastoris* cells
- ✓ HT site-directed or random mutagenesis
- ✓ HT colony picking of bacteria, yeast and eukaryotic cells (ca. 3000 clones a day)
- ✓ HT screening for optimal culture medium



Microlab STAR workstation (Hamilton)

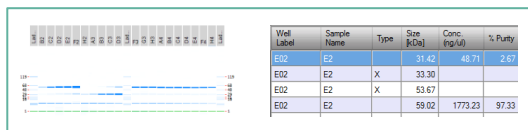
- ✓ HT screening of optimal conditions for purification, refolding and formulation of proteins
- ✓ Development of enzymatic assays
- ✓ Automated preparation of large number of samples



High-throughput sample analysis

LabChip GXII electrophoresis system (Perkin Elmer)

- ✓ Microfluidics Capillary Electrophoresis
- ✓ Sample purity analysis
- ✓ Quantitative sizing and concentration of DNA, RNA and proteins
- ✓ 96- and 384-well plate compatible
- ✓ Sample acquisition time ca. 40 s
- ✓ Concentrations as low as 5 ng/μl
- ✓ Sizes between 14 kDa - 200 kDa



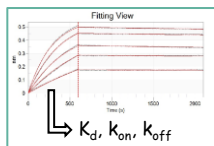
Microplate readers Infinite M200 Pro (Tecan)

- ✓ UV/Vis absorbance, fluorescence, chemiluminescence
- ✓ 96- and 384-well plate compatible
- ✓ Enzymatic assays measurements
- ✓ Conformational stability measurements
- ✓ Turbidimetry measurements, etc...



Octet HTX (fortéBIO - Pall Life Science)

- ✓ Biolayer Interferometry Technology
- ✓ Label-free analysis
- ✓ Affinity (K_d), kinetics (k_{on} , k_{off}) and concentration measurements
- ✓ Epitope binding, epitope binning
- ✓ Drug best candidates screening
- ✓ 96- and 384-well plate compatible
- ✓ 8, 16, 32, 48 or 96 samples in parallel
- ✓ 96-well plate quantitation in ca. 2 min
- ✓ Full plate kinetic screening in minutes, not hours
- ✓ Crude mixtures allowed (e.g. cell lysates, supernatants, glycerol)
- ✓ Samples reusable and biosensors regenerable
- ✓ Protein quantitation down to 50 ng/ml
- ✓ MW detection down to 150 Da



Marathon Classic Microarrayer (Arrayjet) & Cary 620 FTIR imaging microscope (Agilent)

- ✓ Protein secondary structure content analysis by HT FTIR spectroscopy
- ✓ Phosphorylation and glycosylation quantification
- ✓ Molecule quantification
- ✓ HT protein arrayer
- ✓ 96 or 384-well plate compatible
- ✓ State-of-the-art infrared imager
- ✓ 16384 spatially resolved IR spectra in a few minutes (5000-900 cm^{-1})
- ✓ Very high sensitivity (detection of protein monolayers)

